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ABSTRACT

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The Effect of Same-Sex and Cross-Sex Role Models Upon the Subsequent Academic Productivity of Scholars[1]

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Abstract

The academic productivity of four groups was measured: male Ph.D's who had male dissertation advisors, female Ph.D's who had female advisors, male Ph.D's who had female advisors, and female Ph.D's who had male advisors. As predicted, it was found that scholars in the two same-sex role model conditions published significantly more research than scholars in the two cross-sex conditions ($p<.001$). Possible advantages or facilitation effects of providing individuals with same-sex role models, and factors that may inhibit professional advancement in the case of cross-sex role models were discussed.

The Effect of Same-Sex and Cross-Sex Role Models Upon the Subsequent Academic Productivity of Scholars

The impact of adult role models upon the child's development and socialization has been discussed by both the social learning theorists (Bandura, 1969) and Freudian theorists. However, there is a lack of literature documenting the existence of role-modeling phenomena in adults. The shortage of female role models in many professions has triggered some nonempirical papers emphasizing the importance of female models. Almquist and Angrist (1975) noted that successful women academicians, in writing their biographies, emphasized the dominant role that older female role models played in their own academic development. Walum (1974) found that twenty-five married women Ph.D's all had strong identifications with some female model. Douvan (1976) stated that the presence of effective role models help "the young intellectual woman to concretize her own role conception, invest her aspirations with greater reality, and perhaps offer her some useful clues about ordering her spheres of action" (p.5).

Thus, the arguments for providing female role models for women have emphasized the importance of the woman's identification with the model, the significance of information provided by the model's behavior, and positive incentive through illustrative success.

In the opposite role-modeling situation (men with men), "illustrative success" was not emphasized, probably for two reasons: (1) men often witness the success of other males, and (2) it is culturally

perceived as "in-role" behavior for the male to succeed professionally. For males, the benefits reaped from same-sex role models were seen to stem from the ability of the male role-model to identify with his protege. Epstein (1970), in discussing the sponsor-protege system (the mechanism by which apprentices are often assimilated into the professional domain), suggested that male sponsors more readily identify other males as their eventual successors. They might therefore bestow the male protege with greater responsibility, make him aware of the informal values, attitudes, and expectations necessary for success, help pave the way for his acceptance by others, and provide feedback that would strengthen the protege's image of himself as a competent professional (White, 1970).

Research on inhibitory factors in the case of cross-sex role models has focused primarily upon the male-sponsor-female-protege relationship, because the reverse situation occurs less frequently. Epstein suggested that jealousy stemming from the male sponsor's and female protege's other role partners, e.g., wife, husband, may inhibit the relationship. A male sponsor might be reluctant to sponsor a woman professionally because he may not see her as someone who will carry on his ideas; or he may believe that women's family commitments might interfere with professional ones, that women may not be compatible with male colleagues, or that females are financially less dependent upon career-line jobs than men (Epstein, 1970; Lewin & Duchan, 1971; White, 1970).

In a study examining the representation of women and men

psychologists on the editorial boards of professional journals, Teghtsoonian (1974) found that women were not represented as often as one might predict from their numbers as authors. Her findings indicated that when controlling for APA division membership, women had similar publication records as men. Although her data did not suggest how such bias in editor selection operated, she offered possible reasons as noted by Epstein, Lewin and Duchan, and White, and cited in this paper.

This paper determined whether there were differences in the academic productivity of four groups: male and female scholars, who had same-sex and cross-sex role models. Academic productivity, the dependent variable, was measured by the quantity of research published by these groups for a period of four years after subjects' Ph.D's had been awarded. The method of using publication rate as an indicator of academic competency, achievement, and productivity, had been used by Teghtsoonian (1974). It was hypothesized that the two same-sex role model groups would be academically more productive than the cross-sex role model groups. Thus, an interaction effect between the sex of academic advisor and the sex of scholar was expected. No main effects were expected.

Method

Subjects. All subjects were adult males and females who were the recipients of doctoral degrees in psychology in three universities: City University of New York, The New School for Social Research, and New York University during the years 1965-1973. Subjects were

classified according to their own sex, and sex of their advisor and assigned to one of four conditions: male Ph.D's who had female advisors, n=26; female Ph.D's who had male advisors, n=30; female Ph.D's who had female advisors, n=25; male Ph.D's who had male advisors, n=29. The total number of subjects from which each respective group was randomly selected is as follows: N=35, N=155, N=31, N=260. The total n of 110 subjects in this sample had an equal number of male and femlae Ph.D's. The n's for the subjects from the three schools are 36, 34, and 40 respectively.

The mean age of advisors in 1978, for the four groups were as follows: 49.5 for female advisors of males, 52.1 for male advisors of females, 52.5 for female advisors of males, 51.9 for male advisors of males. The percent of ages that were unobtainable for advisors in thse four groups were as follows: 6%, 9%, 8%, 9%. The mean age of Ph.D's at the time they received their degree, for the four groups is as follows: male Ph.D/female advisor, m=34.1, female Ph.D/male advisor, m=34.4, female Ph.D/female advisor, m=35.1, male Ph.D/male advisor, m=33.9. The percent of ages that were unobtainable for these four groups respectively were as follows: 10%, 11%, 7%, 8%.

Scholars obtained their Ph.D's in experimental, clinical, social, personality, developmental, physiological, environmental, community, and industrial psychology. The membership of scholars in these fields were organized according to the following classification: either experimental, clinical, social/personality, or other. The breakdown for the four groups is as follows: male scholars/female advisors:

12 experimental, 7 clinical, 7 social/personality; female scholars/male advisors: 6 experimental, 9 clinical, 10 social/personality, 5 other; female scholars/female advisors: 6 experimental, 5 clinical, 9 social/personality, 5 other; male scholars/male advisors: 7 experimental, 7 clinical, 8 social/personality, 7 other.

Procedure. The names and the date of degree conferred for each individual subject were obtained. After classification of individuals into the four groups, subjects were randomly selected from this larger population by use of a random number table. The initial classification of graduates into four groups was made in order to ensure a large enough sample size for each of the four conditions.

A revised list of subjects with only the name and date of degree conferred was comprised. The advisor's name was deleted. In this manner, the experimenter was unaware of the exact experimental condition of subject, although a knowledge of sex of subject was unavoidable. The psychological abstracts were then consulted for each subject individually for a time period of four years after the degree was conferred.

Tabulations were than made for frequency of publication per subject, each article being counted as one, regardless of whether the subject was sole author, first or second author in a co-authorship, or third author. An analysis of variance was performed on this data to determine the difference in publication rate between the four groups. Then, the publications of these four groups were broken down into three mutually exclusive categories: sole author, first author, or

second and third author. Tabulations were also made for the number publications that were dissertation offshoots. A publication was considered a dissertation offshoot in two cases: (1) if it was listed in the psychological abstracts as such, or (2) if the title of the publication coincided with the title of the dissertation.

Results

Table 1 presents the mean publications of scholars within the four groups during the four year period after being awarded their doctoral degree.

Insert Table 1 about here

As hypothesized, the analysis of variance revealed no significant main effects, but a significant interaction of sex of advisor with sex of scholar (F (1,106) = 20.960, $p<.001$). Scheffe post hoc comparisons were made on all six possible comparisons. The significant comparisons were: male scholar/male advisor and male scholar/female advisor, F (3,106) = 9.813 $p<.05$; male scholar/male advisor and female scholar/male advisor F = 13.447, $p<.01$; female scholar/female advisor and male scholar/female advisor F = 8.267, $p<.05$; female scholar/female advisor and female scholar/male advisor F = 11.313, $p<.05$.

From the total 139 articles published by the entire group, 110 articles or 79% were published by subjects in the same sex role model conditions, and 29 articles or 21% were published by subjects within

the cross-sex role model conditions.

Of the 16 articles published by males who had female advisors: 10 articles (63%) were of sole authorship, 4 articles (25%) were first authored, 2 articles (12%) were second and third authored. Of the 13 articles published by females who had male advisors: 5 articles (38%) were of sole authorship, 4 articles (31%) were first authored, 4 articles (31%) were second and thrid authored. Of the 50 articles published by females who had female advisors: 22 articles (44%), were of sole authorship, 14 articles (28%), were first authored, 14 articles (28%) were second and third authored. Of the 60 articles published by males who had male advisors: 26 articles (43%), were of sole authorship, 13 articles (22%) were first authored, 21 articles (35%) were second and third authored.

Of the articles published by males who had female advisors, 44% were dissertation offshoots; 46% of the publications produced by females who had male advisors were dissertation offshoots; 34% of the publications by females who had female advisors were dissertation offshoots; 58% of the publications produced by males who had male advisors were dissertation offshoots.

Discussion

These results must be interpreted cautiously. A causal relationship between scholar/advisor sex and academic productivity cannot be inferred. We have no way of knowing whether male and female subjects in same-sex groups would have performed even more successfully had they had opposite sex advisors. Furthermore, even if we were to find

that "role-modeling" is responsible for this effect, we would then have to specify more clearly how this process operates. Since role-modeling is difficult to verify empirically, perhaps a reformulation consisting of isolating the separate contributions of the advisor, scholar and interpersonal variables, would be useful. For example, an interpersonal factor to be explored is the importance of rapport, or similarity of cognitive style between scholar and advisor. Examining job recommendations made by advisors for same-sex and opposite-sex students might inform us of the possible favoring of one sex over another. Scholar expectations of their relationship with their advisors should be examined. To what extent does sex of advisor influence students' choices of advisor? What factors lead a person to choose a same-sex/opposite-sex advisor?

It is not implausible that the results obtained were due to self-selection: the more "ambitious" or "intelligent" males and females seek out same-sex advisors. In this study, males and females that had female advisors were sampled from a relatively small population. This probably reflects the fact that there were a smaller percentage of women advisors available to students. However, we might also ask whether fewer or only "certain" students choose to work with female advisors - (e.g. non-ambitious males and ambitious females). But, even if self-selection were operating, then we are left with another unanswered question: Why would the more "ambitious" or "successful" students choose same-sex advisors?

The last finding that deserves comment concerns the publication

"style" of the four groups. The distribution of authorship data showed a substantial number of sole authorship and first authorship for the four groups, as well as a trend for more sole authorship than first authorship. Although the difference between the percentage of sole authors and first authors appears to be greatest in the male scholar/female advisor group, it may be difficult to interpret this in light of the small number of publications for both cross-sex groups. Future research should investigate trends in authorship "style" between the four groups.

Of the two "productive"same-sex groups, male scholars published a greater percentage of dissertation offshoots than females (58% vs. 34%). Thus, it might be that these males were not necessarily more productive per se, but that they sought to make the most out of what they had done, and utilized better strategies. This might necessitate the investigation of publications of scholars for more years than the four year post-Ph.D period in which dissertation offshoots are common.

The replication of this study during varied time periods might be useful in documenting historical trends. Also, replication in varied geographic vicinities would certainly enhance the generalizeability of the results.

Table 1

Mean Number of Publications as a Function of Sex of Scholar and Sex of Advisor, for the Four Year Post Ph.D Period

		Sex of Advisor: Male	Sex of Advisor: Female
Sex of Scholar	Male	2.069	0.615
	Female	0.433	2.000

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